

produce order and certainty where uncertainty and chaos—as regards the identification of species and the determination of their synonymy—previously prevailed to no inconsiderable extent.

Littoral forms of fish-life occupy a considerable portion of the part now before us, although a section is devoted to flying-fish and other pelagic types; but the deep-sea fishes do not come within the purview of the work. Coral-fishes, or coral-wrasses, of the family Labridæ, are treated in the commencement of the present part, and the brilliant hues and remarkable colour-patterns of these gorgeous fishes are most admirably rendered in the accompanying plates. Our sole regret is that the author appears to have made no attempt to explain the mutual relationships and special purpose of these varied markings. Ichthyologists will greatly appreciate the author's careful revision of the large number of species of flying fishes inhabiting the South Seas; but students of the habits of animals will perhaps regret that Dr. Günther has maintained a cautious reserve with regard to the manner in which these fishes perform their aerial flight. Both the "aëroplane" and the "vibration" theories are mentioned, with references, but the author does not give even a suggestion as to which he considers to be the more probable explanation.

With the bare mention that no new species are described, we repeat our congratulations to Dr. Günther on the completion of his long-deferred task.

R. L.

OUR BOOK SHELF.

Further Advances in Physiology. Edited by Leonard Hill, F.R.S. Pp. vii+440. (London: E. Arnold, 1909.) Price 15s. net.

THIS is the second volume of original articles issued under the editorship of Mr. Leonard Hill. The first appeared about three years ago, and was reviewed in NATURE, May 3, 1906. That the publishers have seen fit to issue a second volume is an indication that the first was a success. The present volume treats of a number of interesting and important questions which have recently been subjects of research among physiologists, and the senior student is thus provided with a summary of the latest views which otherwise it would have been impossible for him to have obtained without much labour and exploration in many journals. The idea of the book is thus excellent; one's only fear is that in the presentation of a good deal of controversial matter even the best of students may sometimes lose himself and wish there was more agreement among physiological workers. In some of the articles more attention is paid to points of difference than to points of agreement, and general conclusions to help the reader in the maze are not always forthcoming. On the other hand, from the point of view of the researcher, the descriptions given of recent work are too fragmentary in some cases to be of any real help, though perhaps this may be wise, for anything which tempts the original worker to neglect reading the actual writings of his predecessors on the same road is to be deprecated.

The articles contained in the book are the following:—Prof. B. Moore opens with a consideration of the equilibrium of colloid and crystalloid in living cells; Mr. M. Flack comes next with an article on the heart, in which, *inter alia*, he discusses the *pros* and *cons.* of the myogenic and neurogenic theories; Dr.

T. Lewis deals with pulse records in relation to the events of the human cardiac cycle; the editor advances his heterodox views on the part played by blood-pressure on such phenomena as lymph production and secretion; Dr. A. Keith contributes an anatomico-physiological article on the mechanism of respiration; and Dr. M. S. Pembrey an extremely useful essay on the physiology of muscular work; the problems of growth and regeneration of nerve, and the nature of the nerve impulse, are then considered by Dr. N. Alcock; Dr. J. S. Bolton treats of cortical localisation, and Marie's views on Broca's aphasia are described; and the volume concludes with an article by Mr. M. Greenwood on visual adaptation and colour vision.

The mere enumeration of the subjects treated indicates the wide-reaching interest of the book, and the names of the authors are a sufficient guarantee that the work is well done.

Weltsprache und Wissenschaft. Gedanken über die Einführung der internationalen Hilfssprache in die Wissenschaft. By L. Couturat, O. Jespersen, R. Lorenz, W. Ostwald, L. Pfaundler. Pp. iv+83. (Jena: Gustav Fischer, 1909.) Price 1 mark.

THAT an international language for scientific communication is desirable no one will question; that an artificial language will ever be generally adopted for such a purpose is more than doubtful. If success in this direction is to be attained, it will probably be on the lines indicated in the present pamphlet, which is a kind of unofficial manifesto of the "Délégation pour l'adoption d'une langue auxiliaire internationale" appointed in 1900. A commission including scientific and linguistic experts of different nationalities is more likely to devise an acceptable language than any individual, who of necessity suffers from the prejudice of his mother-tongue and a comparatively limited knowledge of the requirements of the new medium. After seven years' deliberation, the international delegation has adopted most of the principles of Esperanto, but with great modifications in detail.

For Europeans and Americans the fundamental requisites of a common artificial language are:—(1) a simple phonology and alphabet, only such sounds being admitted as are in actual use amongst all the principal European peoples (exclusion of English *w* and *th*, German modified vowels, French nasals); (2) a vocabulary composed, as far as may be, of words comprehensible at sight to cultivated Europeans; (3) as little grammar as possible. These principles are generally followed in the new language "Ilo," the Slavonic peculiarities of Esperanto (e.g. the circumflexed consonants and absurd terminal *j*'s) being carefully avoided. The vocabulary has a distinctly Romanic appearance, and grammar is reduced to small proportions, which might with advantage be smaller still. Word-formation from stems by means of prefixes and suffixes is systematic, but needlessly complicated. Why should we, for example, have the prefix *bo-* to indicate relationship by marriage? "Father-in-law" = *bopatro* is not a necessary word; "wife's father" or "husband's father" is equally simple and more definite. Again, to use *-isto* for "professional" and *-ero* for "amateur" is making a rather superfluous distinction. It may be convenient occasionally to distinguish between *fotografisto* and *fotografiero*, but in the case of, say, *dentisto* and *dentiero* the necessity is not so obvious.

Notwithstanding its shortcomings, "Ilo" is a great advance on its predecessors, and men of science who are interested in the general scheme may be cordially invited to join the "Uniono di l'amiki di la lingvo internaciana." But for the general adoption of the language much enthusiasm will be needed, and it is

rather disquieting to read in a specimen sentence:—
 "Omnia entusiasmo posedas per su la tendenco, ne
 klarigar, sed trublar l'okulo di l'intelekto."

Einführung in die Lehre vom Bau und den Verrichtungen des Nervensystems. By Prof. Ludwig Edinger. Pp. iii+190. (Leipzig: F. C. W. Vogel, 1909.) Price 6 marks.

THIS is an excellent work consisting of fifteen lectures on the various parts of the central nervous system. Dr. Edinger has a very pleasant way of introducing information concerning the functions of the nervous structures as he describes them, a feature which makes his works much more readable than those which give merely geographical descriptions of the parts under consideration. Another feature of the present work is that it keeps the reader constantly informed respecting the comparative anatomy and evolutionary antiquity of the particular structure he is studying.

The book consists of 190 pages, but there are probably less than 100 pages of letterpress owing to the generous way in which it is illustrated. There are no fewer than 161 diagrams, in addition to a plate showing the development of the Neencephalon over the Palæencephalon. The diagrams are so clear and helpful to the student that a mere smattering of knowledge of the German language is probably all that is necessary for the book to be a useful addition to his library.

The first chapter, on methods of investigation of the nervous system, is largely historical; the second is devoted to the study of the histological elements; while the third is a charming combination and correlation of the histology, physiology, embryology and comparative anatomy of the nervous system as a whole. The author then presents a general survey of the brain and spinal cord, and subsequently discusses the various tracts of the spinal cord and traces them from their origin to their termination. Then follow chapters on the pons, cerebellum, mesencephalon, basal ganglia and connections of the optic nerve. The last four chapters are devoted to the various portions of the cerebrum, the corpus striatum, connections of the olfactory nerve, the internal capsule, &c.

On p. 61 there are two diagrams of the root distribution of cutaneous sensation (front and back views) which, so far as our memory serves us, are not in accordance with the findings of Head, Starr or Thorburn, and we are inclined to think that Edinger's diagrams are incorrect.

The addition of an index to the book would greatly enhance its value.

Annuaire astronomique de l'Observatoire royal de Belgique, 1909. Published under the direction of G. Lecointe. Pp. vii+347+258. (Brussels: Hayez.)

OF the numerous publications of the Brussels Observatory, none is, perhaps, more generally useful than this "Annuaire," and we know of no other annual which excels it in general usefulness. All the usual tables, ephemerides, &c., relating to the sun, moon, planets, comets, and stars are contained in the first part, which is followed by explanations as to how to use the tables, and a long list of the names and positions of the principal observatories of the world. A very useful and explicit statement of the legal time used in various countries is clearly illustrated by a folding map, particularly coloured to show the countries which have so far adopted "universal" time and those which have not; the date line is shown in detail too.

Other parts of the "Annuaire" deal with surveying problems—there are some useful formulæ and forms for amateur surveyors—the form of the earth and the more recent work in astronomy.

W. E. R.

NO. 2077, VOL. 81]

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

Mining Administration in India.

IN view of the recent attacks made in the London *Mining Journal* on Mining Administration in India, and also, both directly and indirectly, on the director of the Geological Survey, we have deemed it advisable to send you the following extracts, one of which is taken from the *Mining Journal* of June 26, p. 801, and the other from the published evidence given by Sir Thomas Holland before the Royal Commission upon Decentralisation, and published in Blue-book Cd. 4369 (vol. x. of Minutes of Evidence, p. 47):—

From the *Mining Journal* of June 26, p. 801, leading article, headed "Mining Administration in British India."

"We cannot close our observations on the evidence tendered to the Commission without noting the light thrown by the report on the sincerity of Sir Thomas Holland's attempt to suggest that we had imputed corruption to Government officials in India. As an argument against the establishment of a separate Provincial Survey, the director of the Geological Survey said:—

"If I transferred an officer, say, to Burma, or any province beyond my control, and he was the officer who governed the granting of mining concessions, I have not the slightest doubt that within a year, if he had only ordinary intelligence, he would discover that his salary would¹ be only a fraction of his income." We do not remember even to have seen the chief of what is professedly a scientific body so frankly confess his distrust of his colleagues' honesty and professional pride."

By changing one word in quoting the Blue-book, the *Mining Journal* has altered the whole meaning of the remarks made by the director. In view of the comments made, it is for the *Mining Journal* to prove that this misquotation is accidental. Having regard to the claim of the *Mining Journal* that it "circulates all over the world," the writer of the article must know that it will be read by many to whom the Blue-books are not accessible, for no assistance has been given by a reference to the particular volume in which the director's evidence is recorded. As the inaccurate quotation has already received a start of some weeks before reaching us in India, we shall be glad if, by publishing this letter, you will assist in preventing any further dissemination of a grossly unjust insinuation.

With this sample before them, we can safely leave your readers to estimate the value of the attacks on the Indian administration recently made in the *Mining Journal*.

Needless to add, the relation between us and Sir Thomas Holland is one of perfect and mutual confidence.

We have been unable to communicate with three of our

¹ The italics are ours.

Evidence of Sir Thomas Holland, director, Geological Survey of India, published in Blue-book Cd. 4369, being vol. x. of the Minutes of Evidence taken before the Royal Commission upon Decentralisation in India, p. 47:—

Question No. 43455: "Is not an officer who has to deal with mining concessions in any part of the world subject to great temptation?"

"Yes; if I transferred an officer, say to Burma, or to any province beyond my control, and he was the officer who governed the granting of mining concessions, I have not the slightest doubt that within a year, if he had ordinary intelligence, he would discover that his salary need¹ be only a fraction of his income."